STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

.NGUS S. KING, JR.
GOVERNOR

EDWARD O. SULLIVAN
COMMISSIONER

| | | |
|---|---|---|
| PORTSMOUTH NAVAL SHIPYARD | ) | DEPARTMENTAL |
| YORK COUNTY | ) | FINDINGS OF FACT AND ORDER |
| KITTERY, MAINE | ) | AIR EMISSION LICENSE |
| A-452-71-F-M | ) | AMENDMENT #4 |

After review of the air emissions license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

## I. REGISTRATION

Portsmouth Naval Shipyard (PNSY) of Kittery, Maine was issued Air Emission License #1823 on August 27, 1980, permitting the operation of several emission sources, from their repair, retrofit and general maintenance facility for the U.S. Navy's submarines. PNSY requests an amendment to address minor changes to Air Emission License Amendment #2, A-452-71-D-A, which incorporated the requirements of Chapter 134 "VOC RACT" and Chapter 138 "NOx RACT".

## II. REVISION DESCRIPTION

Portsmouth Naval Shipyard (PNSY) was issued Air Emission License Amendment #2 on October 21, 1996. Amendment #2 addressed the requirements necessary to comply with Chapter 134 "VOC RACT" and Chapter 138 "NOx RACT". After review of Amendment #2, A-452-71-D-A, the Department has determined that some minor corrections are necessary. Therefore PNSY has requested the following changes to more clearly define their requirements for the VOC/NOx RACT Amendment #2:

- PNSY shall meet the limits of Marine Coating Categories listed in the Shipbuilding CTG and MACT in lieu of the current overall limit of 3.5 lb/gallon for "Miscellaneous Metal Parts and Products" stated in Chapter 129 of the Maine Air Bureau Regulations.

- Applicability to the federal MACT requirements for Shipbuilders is for sources which have the potential to emit over 10 tpy of any individual HAP or 25 tpy of total HAP. Actual HAP emissions from PNSY are below 25 tons per year total HAPs and below 10 tons per year of any individual HAP, however, PNSY has had the potential to emit greater than the HAP threshold limits. Therefore Condition 13 will be changed to include these limits.

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- The last sentence of Condition #14 currently states that PNSY use only HVLP spray guns. This broad requirement was never intended for PNSY and should be removed.

- As a condition of NOx RACT, PNSY has agreed to follow an optimization procedure for their boilers which has demonstrated reduction in NOx emissions. The "Finding of Fact" section of License Amendment #2 includes the boiler operating instructions, however, it was not included in the "Order" section. This minor revision will include the boiler optimization procedures in the Order section.

*Coating Categories*

PNSY shall meet the following Volatile Organic HAP (VOHAP) limits for Marine Coatings:

| | VOHAP limits [a b c] | | |
|---|---|---|---|
| Coating Categories | Grams/liter coating (minus water and exempt compounds) | Grams/liter solids temp ≥ 4.5°C | Grams/liter solids temp < 4.5°C [d] |
| General Use | 340 | 571 | 728 |
| Specialty | | | |
| Air Flask | 340 | 571 | 728 |
| Antenna | 530 | 1,439 | |
| Antifoulant | 400 | 765 | 971 |
| Heat resistant | 420 | 841 | 1,069 |
| High-gloss | 420 | 841 | 1,069 |
| High-temperature | 500 | 1,237 | 1,597 |
| Inorganic zinc high build | 340 | 571 | 728 |
| Military exterior | 340 | 571 | 728 |
| Mist | 610 | 2,235 | --- |
| Navigational aids | 550 | 1,597 | --- |
| Nonskid | 340 | 571 | 728 |
| Nuclear | 420 | 841 | 1,069 |
| Organic zinc | 360 | 630 | 802 |
| Pretreatment wash primer | 780 | 11,095 | --- |
| Repair and maint. of thermoplastics | 550 | 1,597 | --- |
| Rubber camouflage | 340 | 571 | 728 |
| Sealant for thermal spray aluminum | 610 | 2,235 | --- |
| Special marking | 490 | 1.178 | --- |
| Specialty interior | 340 | 571 | 728 |
| Tack coat | 610 | 2,235 | --- |
| Undersea weapons systems | 340 | 571 | 728 |
| Weld-through precon. primer | 650 | 2,885 | --- |

a. The limits are expressed in two sets of equivalent units. Either set of limits may be used for the compliance procedure described in 63.785(c)(1) of the "National Emission Standards for Hazardous Air Pollutants for Shipbuilding and Ship Repair Operations", but only the limits expressed in units of g/l solids (nonvolatiles) shall be used for the compliance procedures described in 63.785(c)(2) through (4).
b. VOC (including exempt compounds listed as HAP) shall be used as a surrogate for VOHAP for those compliance procedures described in 63.785(c)(1) through (3).
c. To convert from g/l to lb/gal, multiply by (3.785 liters/gal)(1/453.6 lb/gal) or 1/120.
d. These limits apply during cold-weather time periods, as defined in 63.782. Cold-weather allowances are not given to coatings in categories that permit over a 40 percent VOHAP content by volume. Such coatings are subject to the same limits regardless of weather conditions.

*HAP thresholds*

Currently Condition #13 of Amendment #2 states that "for the purpose of demonstrating ongoing non-applicability to the Shipbuilding MACT and ongoing compliance with VOC RACT requirements, PNSY shall continue to track HAP and VOC use and report the results to the MEDEP annually". This minor revision to the VOC RACT amendment will more clearly specify the limits of 25 tons per year of total HAP and 10 tons per year of any individual HAP.

*HVLP requirement*

The last sentence of Condition #14 of Amendment #2 currently states "PNSY shall use high volume, low pressure (HVLP) design spray guns for all spraying operations". HVLP spray guns cannot be used in many of PNSY's applications. PNSY uses large quantities of recently reformulated, low VOC, two part epoxy paints on the hulls and tanks of the submarines. The heavy viscosity of these paints precludes the use of HVLP guns. PNSY uses airless spray guns (20 to 60% efficient) to apply these paints. The overall use of HVLP spray guns was not intended for the Shipyard, therefore, the last sentence of Condition #14 of the Order shall be removed.

PNSY should consider the most efficient application methods available that will provide the required coating result, based on specification requirements, schedule, and cost. It should be noted that PNSY is currently moving forward with plans to implement the latest powder coating technology for parts removed from the submarine and painted in the shop. If this technology proves effective, it will result in a reduction in PNSY VOC emissions.

*Boiler Optimization*

License Amendment #2 states in the "Finding of Fact" section the boiler optimization required to reduce NOx emissions and comply with NOx RACT. In order to be enforceable, the "Order" section of the license must specify which parameters need to be monitored. This minor revision will include the appropriate optimization parameters to show compliance with NOx RACT.

## ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards, or increment standards either alone or in conjunction with emissions from other sources.

The Department hereby grants this amendment, A-452-71-F-M, subject to the conditions found in Air Emission License #1823, subsequent amendments, and in the following conditions:

(1) **The following shall replace Condition (12) of Air Emission License A-452-71-D-A:**

12) The total non-exempt fugitive VOC emissions (not including VOC emissions from degreasing operations) from the Portsmouth Naval Shipyard shall not exceed 48 tons per year based on a 12 month rolling total updated monthly and shall not exceed 15 tons during any one calendar month, where:

i. the first 12 months shall be from January 1, 1996 to December 31, 1996;
ii. the pounds of VOC emissions are calculated using the PNSY Hazardous Substance Management System (HSMS). The HSMS tracking system, approved by the MEDEP, is described in Enclosure (1) of the July 11, 1997 submittal. The HSMS is used to track all hazardous material and VOC and HAP emissions.
iii. The HSMS shall provide what coatings are used and actual emissions. The system shall provide a demonstration that the gallons of specific coating used multiplied by the actual VOC content is less than the allowable emissions. Allowable emissions are determined by the gallons of coating used multiplied by the RACT emission limits.

(2) **The following shall replace Condition (13) of Air Emission License A-452-71-D-A:**

13) PNSY, for the purpose of demonstrating ongoing non-applicability to the Shipbuilding MACT and ongoing compliance with VOC RACT requirements, shall continue to track HAP and VOC use and report the results to the MEDEP annually as is currently required under Chapter 137. PNSY shall limit total HAP emissions to 25 tons per year and shall limit any individual HAP to 10 tons per year.

**(3) The following shall replace Condition (14) of Air Emission License A-452-71-D-A:**

14) PNSY shall use the HSMS tracking system as noted in Condition (12) and described in Enclosure (1) of the July 11, 1997 submittal. In the event that small amounts of specialty coating with a higher VOC content is needed, then emissions averaging over a monthly period will be allowed to provide the flexibility necessary for overall compliance. When using the emissions averaging, PNSY must show compliance by actual daily emissions averaged over a monthly period. PNSY shall meet the following Volatile Organic HAP (VOHAP) limits for Marine Coatings:

| Coating Categories | Grams/liter coating (minus water and exempt compounds) | Grams/liter solids temp $\geq$ 4.5°C | Grams/liter solids temp < 4.5°C |
|---|---|---|---|
| General Use | 340 | 571 | 728 |
| Specialty | | | |
| Air Flask | 340 | 571 | 728 |
| Antenna | 530 | 1,439 | |
| Antifoulant | 400 | 765 | 971 |
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| Navigational aids | 550 | 1,597 | --- |
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| Undersea weapons systems | 340 | 571 | 728 |
| Weld-through precon. primer | 650 | 2,885 | --- |

PNSY may use up to fifty gallons of any combination of coatings which exceed the VOC emission limitation of the above table during any twelve consecutive month period.

(4) PNSY shall operate the boilers within the limits of the following parameters to reduce NOx emissions:

*1) During the Ozone season 15 May -15 September (NOx limit is 0.35 lbs/MMBtu)*

a) Boiler #2

(1) (<50 k lb/hr) @ summer loads - operate with top two burners out of service and less than 3% $O_2$.

(2) (50-100 k lb/hr) @ intermediate loads - operate with 25% fuel bias and less than 2% $O_2$.

(3) (100-150 k lb/hr) @ high loads - operate with 15% fuel bias and less than 2.2% $O_2$.

b) Boilers #3, #4, #5

(1) (<35 k lb/hr) @ minimum boiler loads - operate with top burners out of service and less than 9% $O_2$.

(2) (35-50 k lb/hr) @ low loads - operate with top two burners out of service and less than 7% $O_2$.

(3) (50-85 k lb/hr) @ intermediate loads - operate with 20% fuel bias and less than 7.5% $O_2$.

(4) (85-120 k lb/hr) @ high loads - operate with 5% fuel bias and less than 6.5% $O_2$.

*2) Rest of the year - 16 September - 14 May (NOx limit is 0.40 lbs/MMBtu)*

a) Boiler #2

Boiler #2 will meet this emission rate at all loads. Fuel oil will be biased (oil pressure to the lower burners higher than oil pressure to upper burners) to at least 10%.

b) Boiler #3, #4, #5

These boilers will meet this emission rate at all loads. Fuel oil will be biased (oil pressure to the lower burners higher than oil pressure to upper burners) to at least 15%.

*3) Record keeping and Reporting:*

a) Continuously record steam load and $O_2$ (circular charts).

b) Log fuel delivery pressure gauge readings (fuel bias) as part of normal data recording.

c) Examine charts and log at end of each 24 hour day to determine if any exceedences of license requirements (above) occurred.
d) Note in a written log the time, duration, cause, and steps taken for each exceedence event.

(5) This amendment shall be reviewed for renewal concurrent with air emission license #1823.

DONE AND DATED IN AUGUSTA, MAINE THIS 25th DAY OF July 1997.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: James P. Brooks for
EDWARD O. SULLIVAN, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: March 20, 1997
Date of application acceptance: March 31, 1997

Date filed with Board of Environmental Protection:

FILED
JUL 25 1997
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

This order prepared by Edwin L. Cousins, Bureau of Air Quality